

REMARKS

Claims 1-3, 7-10, 12-46, 50, and 52-102 are pending in this application. Claims 22-44 and 67-100 have been withdrawn.

In the Office Action dated November 14, 2005, the Examiner rejected claims 1-3, 7-10, 12-21, 45-46, 50, 52-66, and 101-102. In particular, claims 1-2, 7-8, and 15-17 were rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1 005 978 A2 in view of U.S. Patent No. 5,893,955 ("Rousseau et al."). In addition, claims 1-3, 7-10, 12-21, 45-46, 50, 52-66 and 101-102 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,692,681 B1 ("Lunde") in view of U.S. Patent No. 5,851,336 ("Cundiff et al.") and in further view of EP 0 786 330 A2 and Rousseau et al.. The Examiner also rejected claim 9 under 35 U.S.C. 103(a) as being unpatentable over EP 1 005 978 A2 in view of Rousseau et al. and U.S. Patent No. 5,023,041 ("Jones et al."). Additionally, claims 1-2, 7-8, and 15-17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Cundiff et al. in view of EP 0 786 330 A2 and Rousseau et al.. The Examiner further rejected claims 1-3, 7-8, 12, 14-21, 45-46, 50, 52, and 57-66 as being unpatentable over U.S. Patent No. 6,638,466 B1 ("Abbott") in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2 and Rousseau et al.. In addition, claims 9-10, 13, 53-55, and 101-102 were rejected under 35 U.S.C. 103(a) as being unpatentable over Abbott in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2, Rousseau et al., and Lunde. The Examiner also rejected claims 9 and 53 under 35 U.S.C. § 103(a) as being unpatentable over Abbott in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2, and Rousseau et al., and Jones et al. Finally, claims 54-56 were rejected under 35 U.S.C. § 103(a) as being

unpatentable over Abbott in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2, Rousseau et al., Jones et al., and Lunde.

Applicants would like to thank the Examiner for conducting an interview to discuss the pending claims on October 5, 2006. During the interview, the Examiner agreed that the claims would be allowable if Applicants amended the claims to include the limitation of evacuating the air in the core section through the vacuum path provided by the substantially fibrous support layer. Therefore, as indicated above, Applicants have proposed to amend independent claims 1 and 45 to include such a limitation. Applicants have also proposed to cancel withdrawn claims 22-44 and 67-100 directed to non-elected inventions to place this application in better condition for allowance.

Thus, Applicants respectfully request that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 1-3, 7-10, 12-21, 45-46, 50, 52-66 and 101-102 in condition for allowance. Applicants respectfully point out that the final action by the Examiner presented some new arguments as to the application of new art against Applicant's invention. It is respectfully submitted that the entering of the Amendment would allow the Applicants to reply to the final rejections and place the application in condition for allowance. Finally, applicants submit that the entry of the amendment would place the application in better form for appeal, should the Examiner dispute the patentability of the pending claims.

Rejection of Claims 1-2, 7-8, 15-17 Under 103(a)
Over EP 1 005 978 A2 and Rousseau et al.

To establish a *prima facie* case of obviousness, the MPEP requires that the Examiner demonstrate (1) some suggestion or motivation to modify the reference or

combine reference teachings; (2) a reasonable expectation of success; and (3) that the prior art references teach or suggest all the claim limitations. MPEP § 2142 (8th Ed., revised Aug. 2005). As agreed to by the Examiner during the interview, a *prima facie* case of obviousness of claims 1-2, 7-8, and 15-17 cannot be established based on EP 1 005 978 A2 and Rousseau et al. because these references do not teach or suggest the limitations of (1) “evacuating air from the core section of the material stack through the vacuum path provided by the substantially fibrous support layer;” (2) “sealing the evacuated core section by curing the adhesive layer to adhere the support layer and thermoplastic barrier layer to the core section;” and (3) “applying a thermoplastic barrier layer” to prepare the material stack of claims 1-2, 7-8, and 15-17, as amended. In addition, the Examiner has not demonstrated a motivation to combine the references to make the claimed invention. Therefore, Applicants respectfully request that the Examiner withdraw this rejection.

EP 1 005 978 A2 discloses the sealing of core material by placement of a resin film directly on the surface of the core to prevent resin intrusion during a Resin Transfer Molding (RTM) process. (¶¶ [0013]-[0018]). As explained during the interview, when the resin film is applied directly to the surface of the core material, air is trapped between the core and resin film. Because the resin film is applied directly to the surface of the core material, this air cannot be evacuated from the core. Therefore, when the core is sealed, it is not evacuated. EP 1 005 978 A2 also does not disclose a thermoplastic barrier layer, and the Examiner has not pointed to any such teaching in this reference.

Rousseau et al. discloses forming a honeycomb panel using pyrolysis. The panel of Rousseau et al. comprises a core surrounded by layers of prepreg cloth and skins. (Figures 1-2) Since Rousseau et al. does not utilize a RTM process, there is no disclosure of sealing the core to prevent resin intrusion into the core during processing. Therefore, a certain degree of porosity always exists in the structure. (Col. 4, l. 42-45.) Thus, while air may be removed from the structure of Rousseau et al. by a vacuum due to its porosity, once the vacuum is no longer applied air is free to flow into the structure. Thus, there is no disclosure of sealing an evacuated core. In addition, Rousseau et al. does not disclose a thermoplastic barrier layer, and the Examiner has not pointed to any such teaching in this reference.

Therefore, as the Examiner agreed during the Interview, neither EP 1 005 978 A2 nor Rousseau et al. disclose the steps of (1) “evacuating air from the core section of the material stack through the vacuum path provided by the substantially fibrous support layer;” (2) “sealing the evacuated core section by curing the adhesive layer to adhere the support layer and thermoplastic barrier layer to the core section”; and (3) “applying a thermoplastic barrier layer” to prepare the material stack as required by claims 1-2, 7-8, and 15-17. Thus, since these references do not teach or suggest all the limitations of the claims, as amended, the rejections should be withdrawn.

Moreover, even assuming that EP 1 005 978 A2 and Rousseau et al. did disclose all the elements of claims 1-2, 7-8, and 15-17 (which they do not), the Examiner has failed to demonstrate any motivation to combine the teachings of those two references. The Federal Circuit has noted that “virtually all [inventions] are combinations of old elements.” See *e.g.*, *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457 (Fed.

Cir. 1998) (internal citations omitted). An Examiner may find every element of a claimed invention in the prior art, but mere identification is not sufficient to negate patentability. See Id. The “examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.” Id. “The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” M.P.E.P. § 2143.01

A determination of obviousness must be supported by evidence on the record. See *In re Zurko*, 258 F.3d 1379, 1386 (Fed. Cir. 2001), 59 USPQ2d 1693, 1696-98 (finding that the factual determinations central to the issue of patentability, including conclusions of obviousness by the Board, must be supported by “substantial evidence”). The desire to combine or modify references must be proved with “substantial evidence” that is a result of a “thorough and searching” factual inquiry. See *In re Lee*, 277 F.3d 1338, 1343-1344 (Fed. Cir. 2002), 61 USPQ2d 1430, 1433 (quoting *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52). Additionally, the evidence of a motivation or suggestion to modify a reference must be “clear and particular.” *In re Dembicziak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999).

In this case, the Examiner cannot show that a skilled artisan, considering EP 1 005 978 A2 and Rousseau et al., and not having the benefit of Applicants’ disclosure, would have been motivated to combine the references in a manner resulting in Applicants’ claimed invention. As explained during the interview, Rousseau et al. discloses the construction of a honeycomb panel using pyrolysis that always maintains

a degree of porosity. Such a panel could not be used in the RTM process of EP 1 005 978 A2 because resin would intrude into the core during processing. The resulting structure would therefore be completely unsuitable for its intended purpose. "If a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." MPEP § 2143.01. Thus, one of ordinary skill in the art would not be motivated to combine the porous structure of Rousseau et al. with the disclosure of EP 1 005 978 A2. Therefore, the rejection should also be withdrawn for this reason.

Rejection of Claims 1-3, 7-10, 12-21, 45-46, 50, 52-66, and 101-102
Under § 103(a) Over Lunde in view of Cundiff and
in further view of EP 0 786 330 A2 and Rousseau et al.

Applicants also respectfully disagree with the rejection of claims 1-3, 7-10, 12-21, 45-46, 50, 52-66, and 101-102 over Lunde, Cundiff, EP 0 786 330 A2, and Rousseau et al. because these references do not teach or suggest the limitations of (1) "evacuating air from the core section of the material stack through the vacuum path provided by the substantially fibrous support layer" and (2) "sealing the evacuated core section by curing the adhesive layer to adhere the support layer and thermoplastic barrier layer to the core section." In addition, the Examiner has not demonstrated a motivation to combine the cited references to make the claimed invention. Therefore, Applicants respectfully request that the Examiner withdraw this rejection.

As indicated above, the elements of "evacuating air from the core section of the material stack through the vacuum path provided by the substantially fibrous support layer" and "sealing the evacuated core section by curing the adhesive layer to adhere

the support layer and thermoplastic barrier layer to the core section" are absent from Rousseau et al. In addition, as explained during the interview, Cundiff discloses sealing a core by placement of an adhesive film directly on the surface of the core material followed by placement of a layer of prepreg material on the adhesive film. (Col. 7-8.) The adhesive film and prepreg material are then cured to seal the core material. (*Id.*) Similar to EP 1 005 978 A2, air will be trapped between the adhesive film and core during this process. But because of the adhesive film, this air cannot be evacuated through the adhesive film. Therefore, Cundiff does not disclose evacuating air from a core section or sealing an evacuated core.

Similarly, EP 0 786 330 A2 discloses sealing of a core by application of an adhesive film directly on a surface of the core and then applying a barrier film over the adhesive film. (Page 4, l. 10-18.) As with Cundiff and EP 1 005 978 A2, the application of an adhesive film directly to the surface of the core material, prevents air trapped between the core and adhesive film from being evacuated. Therefore, EP 0 786 330 A2 also does not disclose does not disclose evacuating air from a core section or sealing an evacuated core.

Further, Lunde provides no teaching of either evacuating a core or sealing of core material at all, and the Examiner has not pointed to any. Therefore, none of the cited references teach or suggest this limitations of (1) "evacuating air from the core section of the material stack through the vacuum path provided by the substantially fibrous support layer" and (2) "sealing the evacuated core section by curing the adhesive layer to adhere the support layer and thermoplastic barrier layer to the core section."

Finally, as explained above, there is no motivation to combine Rousseau et al. with references disclosing an RTM process, since the structure of Rousseau et al. is porous. For the same reasons, there would be no motivation to combine the teaching of Rousseau et al. with that of EP 0 786 330 A2 and Cundiff. Thus, Applicants respectfully request that the rejection of claims 1-3, 7-10, 12-21, 45-46, 50, 52-66, and 101-102 be withdrawn.

**Rejection of Claim 9 under § 103(a) Over EP 1 005 978 A2
in View of Rousseau et al. Jones et al.**

Applicants also believe that the § 103(a) rejection of claim 9 over EP 1 005 978 A2 in view of Rousseau et al. and Jones et al is improper. Specifically, a *prima facie* case of obviousness has not been demonstrated because none of the cited references teaches or suggests the claim limitations of (1) "evacuating air from the core section of the material stack through the vacuum path provided by the substantially fibrous support layer" and (2) "sealing the evacuated core section by curing the adhesive layer to adhere the support layer and thermoplastic barrier layer to the core section." As discussed above, EP 1 005 978 A2 and Rousseau et al. do not teach these elements. Jones et al. does not disclose these limitations and the Examiner has not pointed to any subject matter in Jones et al. relating to evacuating air from a core or sealing a core. Moreover, for the reasons discussed above, there is no motivation to combine the teachings of Rousseau et al. with EP 1 005 978 A2. Therefore, because the Examiner cannot show that these references teach all the elements of these claims or that a motivation to combine these references exists, Applicants respectfully request that this rejection be withdrawn.

**Rejection of Claims 1-2, 7-8, and 15-17 Under § 103(a)
Over Cundiff in view of EP 0 786 330 A2 and Rousseau et al.**

For the reasons explained above, Applicants also do not believe that the Examiner has demonstrated a *prima facie* case of obviousness of claims 1-2, 7-8, and 15-17 over Cundiff in view of EP 0 786 330 A2 and Rousseau et al. Specifically, as set forth above, Cundiff, EP 0 786 330 A2, and Rousseau et al. do not disclose (1) “evacuating air from the core section of the material stack through the vacuum path provided by the substantially fibrous support layer” and (2) “sealing the evacuated core section by curing the adhesive layer to adhere the support layer and thermoplastic barrier layer to the core section.” Moreover, for the reasons discussed above, there is no motivation to combine the teachings of Rousseau et al. with Cundiff and EP 0 786 330 A2. Therefore, because the Examiner cannot show that these references teach all the elements of these claims or that a motivation to combine these references exists, Applicants respectfully request that this rejection of claims 1-2, 7-8, and 15-17 be withdrawn.

**Rejection of Claims 1-3, 7-8, 12, 14-21, 45-46, 50, 52, and 57-66
Under § 103(a) Over Abbott in view of
EP 0 786 330 A2 , EP 1 005 978 A2, and Rousseau et al.**

A *prima facie* case of obviousness can not be established for claims 1-3, 7-8, 12, 14-21, 45-46, 50, 52, and 57-66 based on Abbott, EP 0 786 330 A2, Rousseau et al. and EP 1 005 978 A2 as well. Specifically, these references do not teach or suggest all the limitations of these claims and no motivation to combine these references exists. Accordingly, Applicants respectfully request that the Examiner withdraw these rejections.

As discussed above, EP 0 786 330 A2, EP 1 005 978 A2, and Rousseau et al. do not teach or suggest (1) “evacuating air from the core section of the material stack through the vacuum path provided by the substantially fibrous support layer” and (2) “sealing the evacuated core section by curing the adhesive layer to adhere the support layer and thermoplastic barrier layer to the core section.” Similarly, Abbott does not disclose the creation of any kind of vacuum path in a core in order to evacuate the core and then seal an evacuated core. In addition, as explained above, no motivation exists to combine the teaching of Rousseau et al. with references relating to an RTM process.

Since none of the cited references teach or suggest all the limitations of the claims and since no motivation to combine the references exists, a *prima facie* case of obviousness cannot be established. Therefore, because a *prima facie* case of obviousness cannot be established for claims 1-3, 7-8, 12, 14-21, 45-46, 50, 52, and 57-66 over the cited references, Applicants respectfully request that the rejection of these claims be withdrawn.

Rejection of Claims 9-10, 13, 53-55, and 101-102
under § 103(a) Over Abbott in View of EP 0 786 330 A2 and in Further View of
EP 1 005 978 A2, Rousseau et al. and Lunde

Applicants also respectfully assert that claims 9-10, 13, 53-55, and 101-102 are not obvious over Abbott in view of EP 0 786 330 A2 and in further view of EP 1 005 978 A2, Rousseau et al. and Lunde. Specifically, none of these references teach (1) “evacuating air from the core section of the material stack through the vacuum path provided by the substantially fibrous support layer” and (2) “sealing the evacuated core section by curing the adhesive layer to adhere the support layer and thermoplastic barrier layer to the core section,” as recited in the subject claims. As discussed above,

this element is absent from Abbott, EP 0 786 330 A2, EP 1 005 978 A2, Rousseau et al. and Lunde. In addition, as is also explained above, no motivation to combine these references exists. Therefore, Applicants respectfully request that the Examiner withdraw these rejections.

**Rejection of Claims 9 and 53 under § 103(a) Over Abbott
in View of EP 0 786 330 A2 and in Further View of
EP 1 005 978 A2, Rousseau et al. and Jones et al.**

Applicants further respectfully assert that the § 103(a) rejection of claims 9 and 54 over Abbott in view of EP 0 786 330 A2, and in further view of EP 1 005 978 A2, Rousseau et al. and Jones et al is improper. Specifically, a *prima facie* case of obviousness has not been demonstrated because none of the cited references teaches or suggests the claim limitations of (1) “evacuating air from the core section of the material stack through the vacuum path provided by the substantially fibrous support layer” and (2) “sealing the evacuated core section by curing the adhesive layer to adhere the support layer and thermoplastic barrier layer to the core section.” As discussed above, this limitation is absent from Abbott, EP 0 786 330 A2, EP 1 005 978 A2, Rousseau et al. and Jones et al. In addition, as explained above, there is no motivation to combine Rousseau et al. with the other cited references. Therefore, because the Examiner cannot show that these references teach all the elements of these claims, Applicants respectfully request that this rejection be withdrawn.

**Rejection of Claims 54-56 under § 103(a) Over Abbott in View of EP 0 786 330 A2
and in Further View of EP 1 005 978 A2, Rousseau et al., Jones et al., and Lunde**

For the reasons discussed above, Applicants also respectfully assert that claims 54-56 are not obvious. Specifically, none of the references cited by the Examiner to reject these claims (Abbott, EP 0 786 330 A2, EP 1 005 978 A2, Jones et al., Rousseau et al., and Lunde) teach or suggest (1) "evacuating air from the core section of the material stack through the vacuum path provided by the substantially fibrous support layer" and (2) "sealing the evacuated core section by curing the adhesive layer to adhere the support layer and thermoplastic barrier layer to the core section" and no motivation to combine these references exists. Therefore, Applicants respectfully request that this rejection be withdrawn.

In view of the foregoing remarks, Applicants submit that this claimed invention, as amended, is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicants therefore request the entry of this Amendment, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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